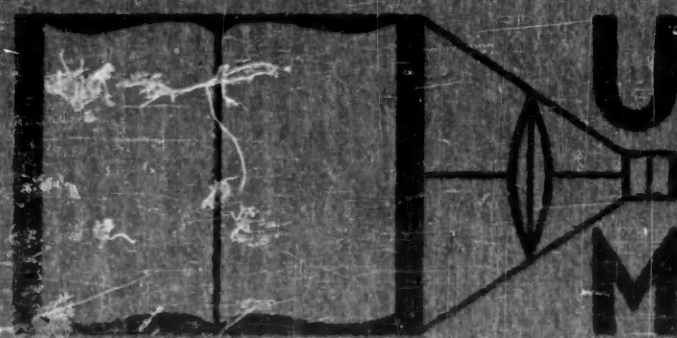


Vol. I

No. 1

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Vol. I

No. 1

M I C R O F I L M
A B S T R A C T S

*A Collection of Abstracts of Doctoral
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ANN ARBOR, 1938

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INTRODUCTION

In earlier days, the publication of scholarly material was comparatively easy, for a sufficient number of people were interested to justify the venture. However, with specialization of scholarship and consequent restriction of the potential market, the publication of scholarly material has become increasingly difficult, since our reproductive processes are designed to produce a large number of copies economically, but are extremely expensive when only a small number of copies are needed. This is especially true of the doctoral dissertation, for these manuscripts, though often valuable and important to certain scholars, are, none the less, very limited in their potential appeal and, therefore, expensive to reproduce.

The procedure followed by most university presses, and other publishing organizations has been to estimate as closely as possible the probable market in relation to the minimum number of copies which can be produced economically by the processes at hand, hoping that a sufficient number will be sold to recover at least the initial investment. That such hopes are often vain is revealed by recent surveys indicating that an average of only one-third to one-half of the edition is sold, the balance being stored or given away. This undistributed one-half represents an investment of the total funds of scholarship which in most cases can never be recovered, being tied up in press work, paper, and binding.

If we break down the functions of ordinary publication, we find two divisions of activity--notification or advising the prospective customer of what is offered, and distribution, or the delivery of a copy upon request. Because our printing facilities are such that many copies must be produced at one time, stocks of books are produced and maintained to take fullest advantage of the economies of the process, from which copies are drawn as orders come in; and it is this stock which represents the major part of the investment in any publishing venture.

With the development of microfilm, however, another method of publication is possible, one which involves a different publishing philosophy and which offers an effective, satisfactory, and economical method of distributing copies of scholarly manuscripts to a limited market. Because microfilm is a straight-line cost process one copy can be produced as reasonably as a dozen or two dozen copies made at one time. Therefore, the only investment necessary is the cost of notification and the small cost of making the negative

microfilm of the original manuscript, from which positive copies may be prepared from time to time as individual orders come in.

This demonstration has concerned itself solely with the publication of doctoral dissertations, although, of course, there is no reason why the same procedure cannot be applied to other manuscripts with limited appeal. The plan which is proposed here, and of which this booklet is a demonstration, is as follows:¹

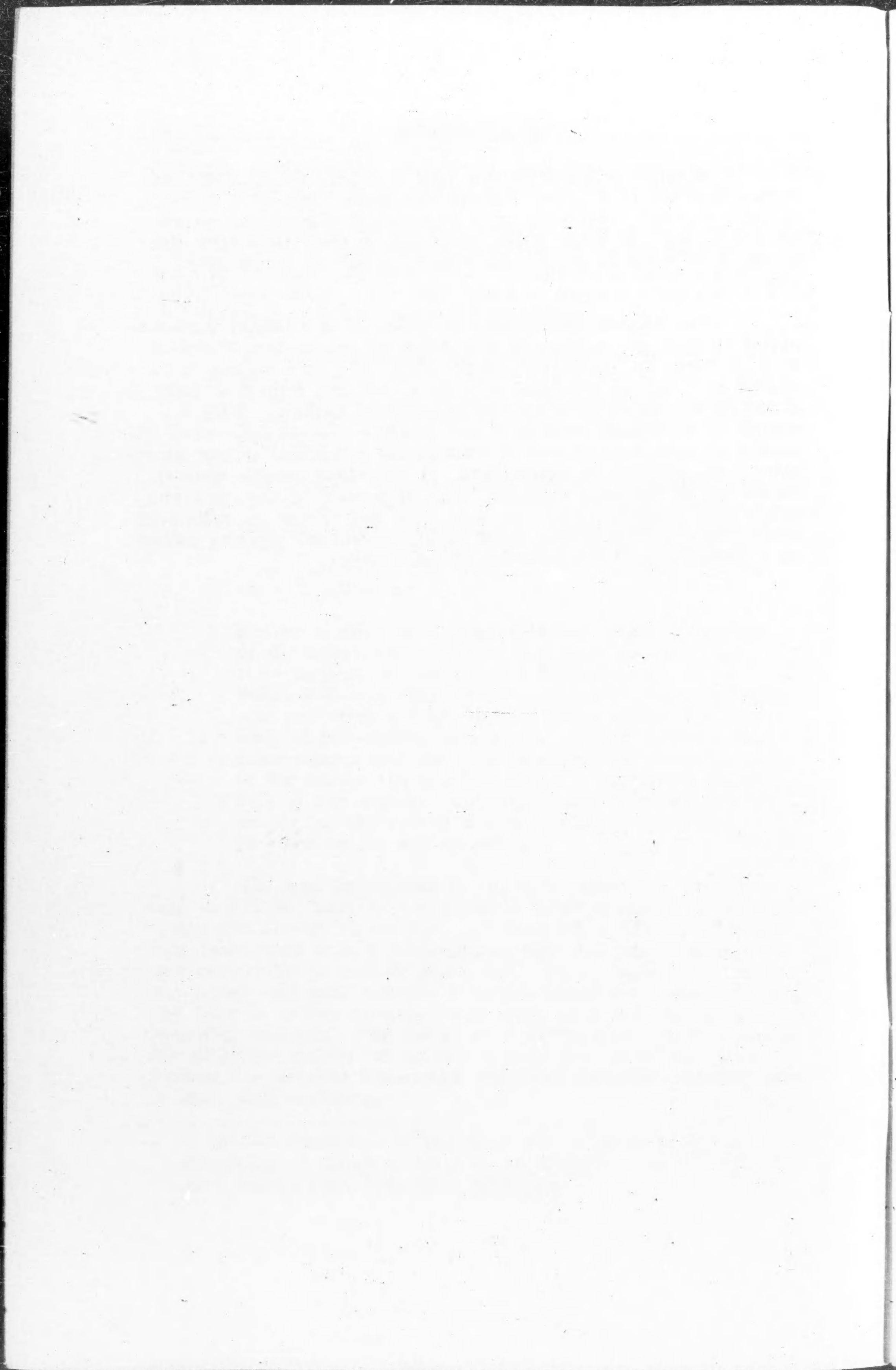
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1. A detailed description of this plan will be found in A Plan for Publication of Scholarly Material by Microfilm and is available upon request from University Microfilms.

Material published in this way is eligible for copyright protection, and should it prove, through experience, that there is a considerable demand, publication may be arranged through any of the usual channels. In other words, there are no restrictions upon the author if he elects to publish his material originally in microfilm form.

The doctoral dissertations presented in this booklet were submitted through the courtesy of five American universities: Princeton, Toronto, Michigan, Nebraska and Stanford, who were willing to cooperate in a test to determine whether or not this method of publication constitutes an effective and satisfactory medium. Such a method of publication involves a new principle in publishing--that of production upon demand and of limiting the investment in any given title to the processes of notification. It can make possible more effective use of the total available funds of scholarship than has ever before been possible, and at the same time will release the individual scholar from the limitations which highly mechanized printing presses have placed upon the distribution of his material.



BOTANY

COMPARATIVE PHYSIOLOGY OF ACTINOMYCES IN

RELATION TO POTATO SCAB

Mitrofan M. Afanasiev, Thesis (Ph.D.)

University of Nebraska, 1937

Summary

A study of the physiology of parasitic and saprophytic Actinomyces was undertaken to secure a better understanding of their metabolism. At the same time, the author hoped, if possible, to find certain differences in their physiology which would help to explain why some Actinomyces are able to parasitize.

Twenty-five different cultures of Actinomyces were submitted to tests of pathogenicity, and seven were found to be parasitic on potatoes while the remainder were saprophytic. The seven parasitic cultures and five of the saprophytic cultures were isolated by the author from scabby potatoes in Nebraska. The remaining saprophytic cultures were obtained from different sources in the United States and abroad. Eight Actinomyces cultures which were reported by other investigators to be parasitic, failed to develop scab in this investigation. The three types of scab, common, deep, and russet, were produced on individual tubers by each of the parasitic cultures. This situation is in contrast to the results obtained by some other investigators, who claim that different parasitic Actinomyces produce different types of scab. The author believes, that in the development of different types of scab, the virulence of the cultures, the reaction of the host, and the environmental conditions, all have their importance.

Culture N-23, which is highly parasitic on potatoes, produced a moderate infection on radishes, a very slight infection on sugar beets and no infection on sweet potatoes.

The growth and behavior of parasitic and saprophytic cultures on different sources of carbon and nitrogen, was about the same, except that all parasitic cultures developed good growth on media containing sucrose and raffinose, while only a few of the saprophytic cultures were able to do so. Practically all parasitic cultures and a few of the saprophytic cultures failed to grow on media containing 0.5 per cent of urea and this was caused by the toxicity of ammonia which was produced from urea. The toxic effect of

ammonia to parasitic cultures was further confirmed by a more detailed experiment in which different ammonia-evolving compounds were used. It was also established, that potassium bicarbonate and calcium hydroxide had a greater inhibiting effect on the growth of parasitic cultures than on saprophytic cultures.

Different carbon to nitrogen ratios have a direct influence on the development of stomatal and aerial mycelium of *Actinomyces*. Media with a high nitrogen content, have an inhibiting effect on the development of aerial mycelium of parasitic cultures and not on saprophytic cultures.

All parasitic cultures and three saprophytic cultures were able to develop melanin pigment on a tyrosine medium when potassium nitrate or other nitrogenous compounds were added. These same cultures failed to develop melanin pigment on a tyrosine medium without an additional source of nitrogen.

Publication Number 55

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STUDIES ON THE PHYSIOLOGY AND ECOLOGY OF ROOTS

Warren Wesley Nedrow, Thesis (Ph.D.)
University of Nebraska, 1935

Abstract

The effect of root-pruning on the production of tops and roots of Holcus sorghum sudanensis was determined. Root-pruning at 5 inches depth at three successive 10-day intervals reduced the dry weight of tops 56 per cent and that of roots 49 per cent. Dry weight of roots in the first 5 inches of soil was reduced 51 per cent, that at greater depths 48 per cent. Similar pruning at 10 inches depth reduced the dry weight of tops 34 per cent and that of roots 37 per cent. Roots in the first 10 inches of soil were 43 per cent and those at greater depths 24 per cent less than the controls.

Water absorption at various depths from 4 to 24 inches was determined for Andropogon scoparius, Poa pratensis, and other prairie grasses. Watering of mature plants in undisturbed soil was begun after available soil moisture had been completely exhausted to 4 feet in depth and the tops had died. Amount of new growth was inversely proportional to the depth at which water was applied.

Five species of very deeply rooted prairie forbs were able to develop normally during a period of two years when the upper 3 to 5 feet of taproots were surrounded with dry soil or encased in waterproof cylinders filled with dry sand.

The relative development of root and shoot of Sudan grass was determined under different degrees of competition for water, light, and for both of these factors. The field-phytometer method was employed. The greatest production of roots in relation to shoots occurred where competition was for water and the soil consequently the driest. Fewest roots were produced in proportion to tops where competition was for light and the soil was continuously the most moist.

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CHEMISTRY

THE EXTRACTION AND THE CHEMICAL NATURE OF LIGNIN FROM A PRAIRIE SOIL

Marcus D. Weldon, Thesis (Ph.D.)

University of Nebraska, 1937

Summary

Soil organic matter is derived mainly from plant residues, which consist largely of cellulose and lignin. Cellulose is rapidly decomposed in the soil and is believed to form a minor portion of the soil organic matter. It has been demonstrated that lignin, which is very resistant to decomposition, constitutes an important fraction of peat soils, but there is very little evidence as to its occurrence and functions in prairie soils. The purpose of this investigation is to find suitable methods for extracting lignin from mineral soils, and to make a comparative study of some of its properties and of those of lignin from undecomposed plant residues.

Several reagents were tried as to their suitability for extracting lignin from soil. Alcoholic sodium hydroxide was found to be most suitable for the purpose. The yields obtained are very low, however, and large quantities of soil and solutions must be handled in order to obtain a few grams of lignin. It was concluded that a quantitative isolation of lignin from the soil is not possible by means of this solvent.

Extraction of the soil with very dilute aqueous sodium hydroxide yielded considerable amounts of a black organic material or soil pigment, which is similar to lignin in some respects and was therefore included in the investigation.

For comparison with the soil materials, lignin was extracted from corn cobs with alcoholic sodium hydroxide.

A comparative study was made of the corn cob lignin, soil lignin, and soil pigment, with respect to their solubilities in water, acid, alkali, and organic solvents, and to some of their chemical properties. Qualitative resemblances and quantitative differences were found in their reactions toward acetylation and methylation, and in the cation exchange capacities of the original materials and the acetylated and methylated products.

It is concluded that ligneous material exists in prairie soil that is derived from the lignin of plant tissues and is similar to it in some respects, but has undergone changes that have considerably modified some of its chemical properties.

Publication Number 56

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47 pages at 1-1/4 cents, total cost \$.59
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FURAN ARSENICALS

William Woolverton Beck, Thesis (Ph.D.)
University of Nebraska, 1937

Arsenic has been linked to the furan nucleus in the beta position for the first time. By the action of arsenic tribromide on methyl 4-chloromercuri-5-bromo-2-furoate in xylene solution, 2-carbomethoxy-5-bromo-4-furyldibromoarsine has been prepared and some of its properties studied. Evidence was obtained of the formation of 2-carbomethoxy-5-bromo-4-furyldibromoarsine from ethyl 4-chloromercuri-5-bromo-2-furoate and arsenic tribromide, and of tri-3-furylarsine from 3-chloromercurifuran and arsenic trichloride.

Attempts to synthesize furan arsenicals by means of the Rosenmund reaction, direct arsonation, ring closure methods, the Friedel-Crafts synthesis, and oxidation of a trifuryl arsine were unsuccessful.

Several new mercurials of furan have been prepared and described. Attempts to prepare mercurials from 2-benzoylfuran, 5-bromo-2-benzoylfuran, and esters of 2-furoic acid were unsuccessful.

5-Bromo-2-furoyl chloride was prepared and described. From it, 5-bromo-2-benzoylfuran was synthesized, and Straley's synthesis of the latter by bromination of 2-benzoylfuran was confirmed. A new synthesis of methyl 5-bromo-2-furoate was developed.

p-Arsonophenyl benzoate, p-arsonophenyl 2-furoate, and p-2-furoylaminophenylarsonic acid were prepared for the first time.

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SYNTHETICAL EXPERIMENTS IN THE
CHELIDONINE GROUP OF ALKALOIDS¹John Warburton Gates, Jr., Thesis (Ph.D.)
Stanford University, 1938Abstract

Chelidonine is believed to be a substituted hexahydrobenzophenanthridine derivative although its structure has not been checked by synthesis. This investigation deals with attempts to develop a synthesis for this type of ring structure with the ultimate aim of synthesizing chelidonine.

The first attempts were in the nature of a modified Bischler-Napieralski isoquinoline synthesis. The N-piperonyl amides of γ -[3,4-methylenedioxyphenyl]-butyric acid and of γ -[3,4-methylenedioxyphenyl]-isocrotonic acid were prepared, but all attempts to form, by dehydration, a ring compound with an exocyclic nitrogen atom failed. Neither could the chloroimide of N-piperonyl- γ -[3,4-methylenedioxyphenyl]-butyric acid be cyclized by means of anhydrous ferric chloride or zinc chloride.

The next scheme of synthesis attempted to make use of Atkinson and Thorpe's 2-phenyl-1,3-naphthalenediamine synthesis. It was hoped that the 3 amino group either could be removed by diazotization or converted to a hydroxyl group and the 1-formyl or 1-acetyl derivatives of the resulting compounds be cyclized to give benzophenanthridine derivatives. However, attempts to remove the 3 amino group by diazotization led to the formation of a complex azo dye. In the case of the 3 hydroxy naphthalene derivative, a mono-acetyl derivative resulted on acetylation and all attempts to prepare a diacetyl derivative failed. A diacetyl derivative of the original diamine was prepared by long boiling with acetyl chloride, but this procedure resulted in tar in the case of the hydroxy amine. Since these attempts were not satisfactory, the scheme was not applied to the corresponding methylenedioxy derivatives.

Another line of attack started with the synthesis of substituted α , γ -diphenylbutyric acids. The synthesis started with α , γ -diphenylacetoacetic ester, thus assuring a functional group in the β position. It was hoped that the keto group could be reduced to an hydroxyl group and that the resulting hydroxy compound could be cyclized to a tetralone which should be convertible to a benzophenanthridine, but all attempts to reduce this keto group failed.

It was found, however, that α , γ -diphenyl- β -hydroxy acids could be synthesized by another method. Phenylacetic acid, when treated with more than two moles of isopropyl magnesium bromide, formed a Grignard complex that was capable of reacting with aldehydes or ketones to give α -phenyl- β -hydroxy acids. α -phenyl- β -hydroxy- γ -[3,4-methylenedioxyphenyl]-butyric acid was prepared, but could not be cyclized to give a tetralone derivative. The hydroxyl group apparently hinders this ring closure by some process such as dehydration and polymerization. This synthesis was dropped after the failure of these ring closures.

The next synthesis was suggested by Robinson's tropinone synthesis and involved an aldehyde ammonia condensation between two moles of 6-carboxymethyl-3,4-methylenedioxybenzaldehyde and methylamine to give a complex substituted amine. This amine might be convertible to the benzophenanthridine derivative by ring closure and saponification. This synthesis has been carried to the stage where a number of intermediates have been prepared from 3,4-methylenedioxyphenylacetic acid.

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DRAMA

THE CHRONOLOGY OF GREEK MIDDLE COMEDY

Francis R. B. Godolphin, Thesis (Ph.D.)

Princeton University, 1938

In the absence of any extant complete plays, the form and subject matter of Greek Middle Comedy cannot be studied with any degree of certainty, but a study of the chronology may supplement our knowledge of Greek literary history and throw some light on the stages in the process of change which led from the comedy of Aristophanes to the comedy of Menander. Earlier studies in the field by Breitenbach and Wagner depend chiefly on references to individuals and the use of particular types of titles, along with allusions to historical events which can be dated.

Although such information is used, the basis of the chronological studies in this dissertation is the use of the inscriptions which deal with the comic poets and the comedies in Athens. These inscriptions provide valuable evidence for the dates of many comic poets of the period (B.C. 388-324) and frequently directly or indirectly supply the dates of individual plays. From these plays individual Athenians (usually courtesans) mentioned in them can be dated. Since the same persons are frequently mentioned by poets whose names do not occur in the inscriptions it is possible to supply probable dates for the activity of additional poets.

The prosopography of persons mentioned in the surviving fragments brings together the references in the poets and relevant information from external sources. Although many playwrights and plays must be left undated or located only approximately within the period, the combination of inscriptional evidence and internal evidence provides a somewhat fuller and more accurate account of Greek Middle Comedy than that which has previously existed.

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SCHILLER AND WAGNER--A STUDY OF THEIR
DRAMATIC THEORY AND TECHNIQUE

Marie Haeffliger Graves, Thesis (Ph.D.)

University of Michigan, 1938

Schiller's dramas find legitimate continuance in their ideas as well as in their form in the music-dramas of Richard Wagner. Before Schiller's day, except for the works of Gluck, we have no art form that definitely suggests the music-drama in the Wagnerian sense. We have opera and spoken drama, both developing through the Italian, presumably from Greek models. Looking back from Wagner, however, we can see that Schiller developed the hybrid we now know as the music-drama.

To be classified as music-drama in the Wagnerian sense an opera or drama must not only combine the well-constructed plot of the drama with devices common to opera: arias, duets, choruses, music brought onto the stage as an integral part of the action; but it must also have pomp and pageantry, and such a wealth of picturesque scene and tableau as shall be out of keeping with the spoken drama.

According to Schiller's aesthetics the standard for such a drama is the capacity of the spectator and auditor to be moved. His theater has, as might be expected, a new synthesis of the arts, for it adds sculpture and painting to music and poetry. It is, therefore, by the aesthetic laws that govern such art forms individually and in combination that the music-dramas of Schiller and Wagner must be judged and not by the standards of any dramas or operas that have preceded them.

That the ideology of Schiller and Wagner was similar can be proved from their writings and ample correspondence. Primarily they leaned toward tragedy as the consummate form of creative expression. Both regarded the theater as a sort of lay pulpit for the uplift of mankind, and both favored state control of that institution. Further, for such education of the Volk, scarcely a theme was selected by one that has not its counterpart in the work of the other. Remarkably congruent, too, is the treatment of such themes; for both Schiller's and Wagner's daemonic heroes pass through unique events to a catastrophic death willingly and transfigured. In fact, the philosophy expressed in their dramas subscribes to all the tenets of pessimism: denial of the world, resignation, purification, redemption. Even their comedies have pessimistic solutions. In the works of both dramatists sympathy is the mainspring of the action. Indeed, of the master passions that motivate conduct both writers preferred love and ambition to jealousy, anger, and revenge. Moreover,

they permitted baser passions only to characters of second rank and there only for necessary shading. As a result, their villains can scarcely ever be well-rounded entities.

Similarity in theme subject and treatment does not necessarily presuppose similarity in architectonics; yet the solutions for problems of form are often identical. For instance, to secure dramatic unity Wagner often uses a Schillerian device known as the "picture frame," a duplication of the main scene in the first and last acts with a contrast in mood. Numerous, too, are the similarities in phrase, in situation, and in scene. But most astounding of all is the congruity between the structure of the great cycles: the Wallenstein trilogy and the Nibelungen tetralogy. So remarkable is this resemblance that one might accuse Wagner of plagiarism if he had not used the skeleton unconsciously.

Fortunately for posterity, Wagner had absorbed Schiller's works so early in life and had forgotten so much of them that he escaped the universal fault of the epigoni, slavish imitation of Schiller's stylistic idiosyncrasies. Wagner owes to Schiller among dramatists specifically what he owes to Beethoven specifically among musicians. He used tools ready to hand to give us a well-defined creative step forward in the music-drama.

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ECONOMICS

NATIONAL BANK STOCK AS INVESTMENT

Roy John Wright Ely, Thesis (Ph.D.)

University of Nebraska, 1937

Summary

The object of this study has been to examine the factors that condition national bank stock as investment. In this examination, wherever possible, we have looked first to national banks as a whole, and second, to the banks classified according to reserve requirements.

From the study a number of conclusions have been drawn, among which are the following:

From an investment standpoint national bank stock is affected by regulatory measures that pertain to capital and surplus requirements, dividend payments, amount of stock owned by directors, qualifications and liabilities of directors, loans and discounts and investments, and taxation.

Among recent legislative acts that appear favorable to bank stock are the removal of statutory double liability, the raising of minimum capital requirements of newly organized banks, the stiffening of minimum surplus requirements, and curbing the affiliate method of dealing in securities. Of the legislation that may be unfavorable is the removal of certain restrictions on loans and investments in non-commercial assets.

The proportion of stockholders' interest in the resources of all banks has decreased materially. This is significant in respect to the place of deposits in the funds of banks; and to the safety of bank stock.

Loans and discounts and investments are the main sources of income. Upon them depend in large measure the safety of bank stock and the amount and certainty of income. Investments grew in importance relative to loans and discounts until 1933 when the two items were nearly equal. The major share of investments is government obligations.

Banks with well-diversified loans and discounts and investments show higher and more certain income than banks with less diversification. On the whole banks located in the larger cities are in a more favorable position than country banks.

For all banks from 1918 to 1933 expenses averaged about 70 per cent of gross earnings. Salaries and wages and interest on deposits absorbed about 50 per cent of total earnings.

Losses on account of bad loans and discounts and investments averaged annually 12.18 per cent of the capital stock of all banks from 1918 to 1933 and recoveries averaged 2.60 per cent.

Net addition to profits, after adjustment for recoveries and losses, amounted to an annual average of 12.80 per cent of the capital stock of all banks from 1918 to 1933.

Net addition to profits of all banks from 1914 to 1933 varied from 1.83 per cent of total capital funds and deposits in 1914 to a negative per cent of 1.29 in 1933.

Average dividends for all banks from 1870 to 1930 were a little less than 10 per cent of the capital stock. On total capital funds dividends were slightly under six per cent.

Conditioning all factors which determine the status of national bank stock as investment is bank management, the importance of which cannot be overemphasized when one considers bank stock for investment purposes.

EDUCATION

A PROPOSED PRETHEOLOGICAL CURRICULUM FOR THE PREPARATORY SCHOOLS OF THE EVANGELICAL LUTHERAN SYNOD OF MISSOURI, OHIO AND OTHER STATES Lawrence George Bickel, Thesis (Ph.D.) University of Nebraska, 1937

Summary

This study includes an evaluation of a tentative curriculum for pretheological education in the preparatory schools of the Evangelical Lutheran Synod of Missouri, Ohio, and Other States; an historical introduction; an evaluation of the objectives of ministerial education; a critical analysis of the aims and subject matter recommendations in eight subject fields; recommended changes, additions and diminution of time allotment and materials in these fields and the proposal of a revised curriculum based on the reactions and suggestions of the participants in this study.

The thesis also contains an analysis of the official actions of the synodical body in curricular matters in the past 90 years; a tabulation of time allotment in the various subjects in the preparatory schools of the Missouri Synod during a period extending from 1900 to 1930; a study of the recommendations of previous survey committees; a careful analysis of 178 usable returns of a detailed questionnaire based on the curriculum recommendations of the Committee on Higher Education, and a summation of the content of 2400 comments on different items in the questionnaire.

The findings of this study consist of recommendations relative to the length of the pretheological course; the desirable emphasis in the curriculum with special reference to the philological phases, the social studies and the exact sciences; and a discussion of the advisability of coordinating the curricula of the three types of schools maintained by the Missouri Synod in such a manner as to enable a student to obtain a continuous, broad, and adequate preparation for the office of the ministry in the Lutheran Church.

Publication Number 56

Microfilm copy of complete manuscript

251 pages at 1-1/4 cents, total cost \$3.34

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HISTORY

ENGLISH PUBLIC OPINION AND THE COLONIES UNDER THE RESTORED STUARTS, CHARLES II AND JAMES II, 1660-1689

William Harris McClure, Thesis (Ph.D.)
University of Michigan, 1938

The years between 1660 and 1689 were important in the growth of England's colonial policy. Public opinion, particularly of interested groups, distinctly left its impression upon the policy adopted. Committees of the Privy Council dealing with colonial affairs sought advice from such magnates in overseas trade as Child, Noell, and Povey. Pamphleteers, both licensed and unlicensed, were important in the fixation of ideas on colonial expansion. A closed economy, not unlike that of the medieval town, prevailed. The accumulation of bullion was viewed as true wealth, and all trade evaluated upon its ability to do this. Colonial trade, entailing the export of bullion contrary to prevailing theory, was defended as to its ultimate advantage by writers such as Mun, Barbon, Child, and Petty. The Dutch, greatly advanced in banking, commerce, and colonial exploitation, were held up as examples for emulation. England's population was deemed too small, so that migration of useful persons to the Colonies often met with disfavor. The policy of the Navigation Act, aimed against competition by the Dutch, was warmly supported by mercantilists like Child, but covertly opposed by advocates of free trade such as Coke, who feared it might cause loss of the Colonies. A powerful colonial lobby at Westminster, maintained by sugar and tobacco planters, constantly protested against high duties and regulatory measures. New England produced more discussion than any other settlement, largely hostile, because of unsuitable climate, products competitive with England's, and a population likely to rebel. The attempt to raise revenue here was as early as 1671 judged unwise by the Lords of Trade, and notorious refusal to obey regulations commonly accepted. Virginia was esteemed as a place of settlement though objection was raised to her tobacco monopoly created by the Navigation Act. The West Indies, because of their tropical products, large consumption of English goods, and ease of control, were praised by most writers. Spirited controversy raged as to the retention of New Foundland as a seasonal fishing station or its permanent settlement. Popular opinion which marked the Colonies as places for criminal and pauper, thereby greatly inhibited voluntary migration, which in turn resulted in resort to assisted or forced immigration to meet

the need for colonial labor until the later expedient of negro slavery. The shortage of voluntary indentured servants resulted in spiriting of persons overseas against their will and public outcry to prevent this. Conditional pardon of convicts for transportation to the Colonies supplied the bulk of needed labor and found favor in England. William Penn, both from his association with other Friends in the West Jersey venture of 1676 and his personal enterprise of Pennsylvania, was the greatest colonial promoter of the period. Penn's chief motive for establishing Pennsylvania may well have been to draw dissenters from England in order to avoid armed conflict in a civil war. The Carolina scheme, promoted by a conservative group of courtiers to establish a feudal settlement in America, secured by Locke's constitution against the pitfalls of New England, was not entirely impractical. Serious ideas on colonization were presented by thinkers like Sir William Petty, often progressive in nature.

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NEBRASKA IN THE SPANISH-AMERICAN WAR
AND THE PHILIPPINE INSURRECTION: A STUDY
IN IMPERIALISM

John Reuben Johnson, Thesis (Ph.D.)
University of Nebraska, 1937

Summary

The object of this study has been to set forth an accurate account of the military participation; tell the part played by civilians; and determine the state of public opinion in Nebraska during the period.

An examination of the sources of information leads to a number of conclusions:

Nebraskans were enthusiastically in favor of the war with Spain though generally opposed to a war against the Filipinos.

The state furnished more than its quota of troops.

Politics played a part in organizing these forces.

The First Nebraska Regiment rendered distinguished service in the Philippines.

The Second Nebraska Regiment and Troop K suffered the effects of an unhealthy camp and poor administration at Chickamauga Park, Georgia.

The Third Nebraska Regiment received undeserved publicity because commanded by W. J. Bryan. This regiment saw service in southern camps and did garrison duty in Cuba.

The Stotsenburg investigation demonstrated the influence of a misdirected public opinion.

The legislature gave little aid to the soldiers but public contributions were generous.

Nebraska was in the spot-light because of Bryan making political capital out of imperialism.

Imperialism made a weak political issue in Nebraska, more interest being displayed in strictly domestic affairs.

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MATHEMATICS

A STUDY OF A UNIVERSE OF N FINITE POPULATIONS WITH APPLICATION TO MOMENT-FUNCTION ADJUSTMENTS FOR GROUPED DATA

Joseph Alphonso Pierce, Thesis (Ph.D.)
University of Michigan, 1938

The expected value of a particular moment about a fixed point of n populations equals the corresponding moment about the same point of the universe. However, when the moments of the n populations are computed about the population means, it is found that the expected value of a given moment of the n populations is not equal to the corresponding moment about the mean of the universe. Formulas are derived for the expected value of the first six population moments about the mean.

Under the hypothesis that samples of n are formed by selecting one variate from each population, "generalized" sampling formulas are derived for such moments of sample moments as are generally considered in conventional sampling theory. If it is assumed that the n populations are identical, the generalized sampling formulas become the usual infinite or finite sampling formulas depending upon whether or not "repetitions are permitted." It is then possible to transform infinite sampling formulas into the corresponding finite sampling formulas.

A finite set of data grouped in " k groupings of k " is a special case of a universe of n finite populations. It is found that the adjustments for moments and Thiele semi-invariants of grouped data involve moments about the mean of a rectangular distribution. All adjustment formulas of this paper are expressed in terms of moments of a rectangular distribution. Moments and Thiele semi-invariants, through the twelfth order, are derived for rectangular distributions of discrete and continuous variates. The usual formulas for the expected value of moments about a fixed point of grouped data are derived by means of the methods which are used to find the relations between population moments and moments of the universe. It is found that the cumulative property of Thiele semi-invariants may be employed to derive $E[\lambda_{t:x}] = \lambda_{t:x} + \lambda_{t:R}$. Consequently, the usual formulas for the corrections for Thiele semi-invariants are expressed completely in terms of Thiele semi-invariants.

Under the assumption that $E[\bar{\mu}_t] = \frac{1}{k} \sum_{r=1}^k \bar{\mu}_t$, it has been pointed out by Carver that the usual formulas for the expected value of moments about the mean are incorrect in the case of grouped data. Carver supplied the formula $E[\bar{\mu}_2] = \bar{\mu}_2 + \bar{\mu}_{2:R} - \bar{\mu}_{2:\mu_1}$, but did not indicate a general method for the derivation of $E[\bar{\mu}_t]$, $t > 2$. This paper contains precise formulas for $E[\bar{\mu}_t]$, $t = 2, 3, 4, 5, 6$ and $E[\lambda_t]$, $t = 2, 3, 4$. Also general methods are indicated by which precise formulas may be derived for $E[\bar{\mu}_t]$ and $E[\lambda_t]$, for all finite, positive t . Exact and approximate formulas are given for the evaluation of $\bar{\mu}_{2:\mu_1}$ from a single grouping.

Both the usual adjustment formulas and the precise adjustment formulas are applied to an arbitrarily selected numerical problem. It is noticed that while the error is comparatively small in $E[\bar{\mu}_2]$, being only about $\frac{1}{39}$ of the usual corrected second moment about the mean, it increases with the order of the moment. In $E[\lambda_4]$, the error is almost $\frac{1}{4}$ of the usual corrected fourth Thiele semi-invariant.

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PHILOSOPHY

ACTION--LOGICAL, METAPHYSICAL, AND NORMATIVE IN MAURICE BLONDEL

Robert Jacques, Thesis (Ph.D.)

University of Toronto, 1938

Summary

The self-sufficiency of notional logic and of human action is criticized by Maurice Blondel in a monumental series which forms a logical climax to the development of the spiritualistic school of French Philosophy whose most famous representatives are Maine de Biran, Emile Boutroux, and Henri Bergson. This thesis attempts an exposition of action as described by Blondel and some evaluation of a philosophy of existence which surpasses the philosophy of the idea.

Action, for Blondel must be regarded as actuality, not the élan vital associated with Bergson and various political movements such as Fascism. Three forms of action are described: The impressing of form on matter, character development, and contemplation.

Why is there a dialectic of action, a general as opposed to a formal logic? The answer is that action exhibits real growth and, thus, requires a dialectic. The discursive procedures of thought, although indispensable, are not sufficient for the integral study of a being possessing singular and concrete universal in its concrete unity; action is more than thinking.

Are action and thinking, then, radically heterogeneous from the metaphysical point of view? No, if such were the case, thought would be restricted to a system of relations; notional abstractions would be substituted for life; action would be a force exerted by obscure powers upon which intelligence could throw no light. A vivid protest is made against the "separated" intelligence of Maritain and Bréhier.

What part does the normative play in action? What is the rôle of the moral judgment in knowing? Blondel prefers the term, "judgment of value," for he claims that at every level agnition as well as cognition takes place; neither knowledge nor valuation are exterior to reality, but are interior to the dynamic, knowing process. The normative is vital and immanent; being is a striving

towards unity or intelligence, and this discovery of value at the heart of the universe promotes philosophy to the exercise of the functions of the "fourth estate."

Blondel's dynamism is a solution of the problem of the intelligible and the real: Action is synthetic and all-pervasive and constitutes the vinculum between thought and being. In this realist and integral system, fabrication, self-development, and contemplation are closely related stages of adaptation to the real: what we possess of action is only a transition to the eternal Agir.

Blondel's integral realism is more actual today than when first outlined: it undertakes to reconcile the claims of science, metaphysics, and religion. This concrete and integral philosophy deals with man as he is, a product of history, not as he might be in a state of nature. It also indicates a method which will enable philosophy to rectify eventually the shortcomings of Bergson and Kant. Blondel discovers essentially that a critique of reason involves a critique of life.

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ACTUAL ENTITIES--A STUDY OF
A. N. WHITEHEAD'S THEORY OF REALITY

A. H. Johnson, Thesis (Ph.D.)

University of Toronto, 1937

It is the purpose of this project to state and critically evaluate Whitehead's theory of actual entities. This also inevitably involves a discussion of eternal objects.

The implications of his consideration of "creativity," "one" and "many" have been indicated by comparative reference to the work of other philosophers who have dealt with these topics. The weaknesses found in traditional formulations have been noted. An effort has been made to determine whether or not Whitehead has been able to offer a genuine solution for any of these problems, (for example, in the case of "purpose," "space and time," "freedom," "relations," "value," "identity and permanence").

In the development of the thesis project, certain relevant matters have been dealt with: 1. An effort has been made to indicate types of experience which Whitehead analyzes in order to obtain the information which he uses in formulating his theory of reality. 2. In stating the implications of certain of Whitehead's theories, care has been taken to correct a number of recent misinterpretations. 3. An attempt has been made to indicate in what sense Whitehead may be called a "panpsychist," and how he differs from most panpsychists. 4. Whitehead claims relationships with Platonism, and the positions of Bradley and James. An examination of this matter has been attempted. The conclusion is that such relationships are not very profound. 5. This thesis emphasizes the fact that Whitehead proposes to regard God as a genuine actual entity, not merely the name for the joint activities of many entities. 6. Reference has been made to the basic differences which distinguish Whitehead's "philosophy of organism" from the traditional "substance" theories of reality.

The critical part of the thesis develops the following topics.

The advisability of interpreting all real entities by means of categories applicable to human experience, has been questioned. Whitehead's position is thus exposed to some (not all) of the usual objections to panpsychism.

It has been pointed out that the "philosophy of organism" is unable (within the circle of its categories) to account for the emergence of novel organic characteristics. That is to say, in its present form Whitehead's philosophy does not admit the presence in

an organism (society) of any qualities which can not be found in its component actual entities. This also involves the question as to whether Whitehead gives sufficient recognition to the element of identity which characterizes enduring societies, i.e., persons and things.

It has been pointed out that God cannot, consistently, be regarded as an "ordinary" actual entity.

The validity of Whitehead's analysis of the process of perception has been criticised. Whitehead emphasizes the claim that we have no direct experience of the external world. Data derived from past bodily states are "projected."

On the basis of this examination and resultant criticism, the conclusion has been reached that, despite many valuable insights, Whitehead's system of general ideas is, in its entirety, neither coherent nor necessary. It has been further claimed that some elements in experience cannot be interpreted by this system of general ideas.

The "thesis" to be defended is this: Whitehead, unlike many philosophers, formulates a metaphysics which does justice to a number of "common-sense" insights. He holds that there are many real entities, which are externally related (as well as internally), in a world in which change (process) actually occurs. God is not directly responsible for everything which takes place. However, on the basis of his own criterion, Whitehead's metaphysics is open to considerable criticism. His "categories" do not seem to be applicable to (descriptive of) certain phases of experience. There are, in addition several internal inconsistencies.

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POLITICAL SCIENCE

ROSA LUXEMBURG AND THE GERMAN SOCIAL DEMOCRATIC PARTY

Charles Easton Rothwell, Thesis (Ph.D.)
Stanford University, 1938

This study deals primarily with Rosa Luxemburg's activities in the German Social Democratic Party between 1898 and 1914, although the first chapter, a comprehensive biographical sketch, carries the narrative through to her death on January 15, 1919. A detailed account is given of her part in the fight made by the orthodox majority of the German party between 1898 and 1903 against Eduard Bernstein's revisionism. Her attempts to combat reformist practices are also narrated at length, as are her efforts to preserve a revolutionary orientation in the socialist unions and to maintain the revolutionary significance of May Day. Three chapters are devoted to Luxemburg's advocacy of the political mass-strike as a weapon of direct proletarian action. One is given to a discussion of her principal theoretical work, The Accumulation of Capital. Her efforts to influence socialist policy on nationalism, imperialism, and war are sketched in the biographical chapter.

Rosa Luxemburg was born at Zamosc, Poland on March 5, 1870 of fairly well-to-do and cultured Jewish parents. She was brilliant and gifted and early acquired, through voluminous reading, a wide knowledge of anthropology, sociology, and the history of the labor movement and revolution. Her intellectual interests extended beyond these fields to literature, music, art, and the natural sciences. She was graduated from the University of Zürich with the degree doctor juris et cameralium.

Having been attracted to the labor movement as a girl in Warsaw, Luxemburg became an ardent convert to Marxism. She opposed the nationalist tendencies in Polish socialism. While at Zürich, she organized in 1893 with Leo Jogisches, Adolf Warski, and Julian Karski a minority party, the Social Democratic Party of Poland and Lithuania, which was opposed to the restitution of an independent Poland.

After a year in France, Rosa Luxemburg became a German citizen in 1898 by marrying a German national, from whom she separated immediately after the ceremony. Citizenship carried with it the opportunity for a career in the German Social Democratic

Party, the strongest party of the Second International. She associated herself with the intransigent Marxists on the left wing of German Social Democracy and rapidly acquired pre-eminence among them, a position which she retained throughout her life.

Luxemburg's principal activities in German socialism were writing and agitation. Although she was a delegate to the party congress almost every year, she held no official position in the German labor movement. Never having ceased her activities in Polish socialism, she represented Poland at the congresses of the Second International and as a member of the International Socialist Bureau. Between 1907 and 1914 she was very successful as a teacher of political economy in the German Party School. During her twenty-year career in the German movement, she made several contributions to the literature of Marxist theory and tactics. Her more important works were Social Reform or Revolution? (1898-99), Mass-Strike, Party, and Unions (1906), The Accumulation of Capital (1912), and The Crisis of Social Democracy (The "Junius" Pamphlet) (1915).

Rosa Luxemburg entered the German party at a critical period in its development. Eduard Bernstein, influenced by a long exile among the Fabian socialists of England, had in 1896 and 1897 challenged the doctrines of Marx. He suggested that the party should revise its policies and tactics upon the assumption that the collapse of capitalism was not imminent and that socialism could be achieved peacefully, legally, and gradually through unions, co-operatives, and the democratic process. Bernstein's revisionism was a theoretical rationalization of reformist tendencies which had been growing in German socialism since 1870.

With a deep conviction that socialism could arise only upon the ruins of capitalistic society and could be won only through persistent class struggle and a revolutionary seizure of political power, Luxemburg joined the orthodox majority in fighting revisionism. She wrote Social Reform or Revolution? for the purpose and also participated in the debate at the Hanover Congress of the party in 1899, demanding that revisionism be condemned by resolution, and that the fight against the heretical tendency be carried to the masses. Though she did not press it at the congresses, she demanded that the revisionists be expelled from the party.

The orthodox majority exacted a nominal victory over revisionism at several congresses, culminating with that at Dresden in 1903 and the Amsterdam Congress of the Second International in 1904. At the same time, Luxemburg was influential in having condemned by word or resolution such reformist outcroppings as opportunistic election tactics, compromising military policies and efforts to attenuate socialism's principle of free-trade. Between 1900 and 1904 she was German socialism's most outspoken orthodox critic of

the French socialist Millerand's entrance into a bourgeois ministry. During the same period she began her attacks upon the South German socialists for voting the budgets of their governments and forming election blocs with bourgeois parties, political expedients which were forbidden by socialist principles.

Rosa Luxemburg regarded reforms as necessary but followed Marx in the belief that they should be subordinated and made contributory to revolution. She held that the struggle for reforms was more important than the reforms themselves. Her attitude towards the socialist unions was comparable to this. She believed they performed a useful function but were incapable of introducing socialism, a goal which could be achieved only through a revolutionary seizure of power by the party with union support. On the basis of these principles, she joined in fighting a movement for union neutrality between 1897 and 1902. Aware that the unions were gaining influence over party policy, she also attempted to prevent this happening.

The anti-revolutionary tendencies in the unions and the party grew apace, despite the seeming triumph over revisionist tendencies between 1898 and 1904. Strongly opposed to actions which appeared to waste their resources or to provoke unnecessary retaliation from industry or the state, the unions sought to attenuate the revolutionary character of May Day. This Rosa Luxemburg fought fruitlessly to prevent between 1905 and 1914. The party yielded to the unions on the question of May Day and, at the same time, shifted the axis of its own work into parliament. After 1907 Social Democracy modified its tactics towards the end of strengthening its Reichstag delegation. Luxemburg brought to light in 1912 a secret election agreement made by the socialist leaders with a left wing liberal party. Though she criticized this deal vigorously as treachery to party principles, the Executive Committee was not censured for its action.

After the Belgian general strike for universal suffrage in 1902, Rosa Luxemburg became German socialism's most ardent apostle of the political mass-strike. She regarded the mass-strike as a supplement to other forms of class-struggle but more genuinely proletarian because it involved no reliance upon bourgeois institutions. A wave of revolutionary spirit which swept over Europe between 1902 and 1904 facilitated the adoption of the mass-strike as a defensive weapon by the Amsterdam Congress of the Second International in 1904. Under the influence of the Russian revolution, it was also accepted by the German party in 1905 over the protests of the German unions.

The German leaders, including the party theorist, Kautsky, regarded the mass-strike as a defensive measure to be used only in an extreme emergency for purposes such as the protection of universal

suffrage. Luxemburg, influenced by the Russian revolution, in the closing weeks of which she participated at Warsaw, considered it an aggressive measure, leading towards but also identical with revolution. It was integrally related to her concept of revolution as a continuous and repetitive process. She emphasized the rôle of unorganized labor in such a movement and stressed the idea of spontaneous upheaval when historical conditions were ripe. These ideas she incorporated into Mass-Strike, Party, and Unions (1906).

While Luxemburg and her radical associates were agitating for an aggressive mass-strike policy in 1905-1906, the party was subjected to pressure from the unions, which continued to oppose any form of revolutionary political strike. The party leaders, who were themselves unfriendly towards an aggressive strike policy, yielded to the realization of their dependence upon harmonious relations with the unions in 1906 and virtually shelved the mass-strike.

A division, which had been growing after 1905, between Rosa Luxemburg and her followers on the one hand and the party majority on the other was consummated in 1910. Luxemburg's advocacy of a mass-strike at the height of an agitated popular campaign for universal suffrage in Prussia led to a polemical battle and split between her and Kautsky. It also marked the emergence of the radical left wing opposition group of which Luxemburg was leader. She vainly attempted to commit the party, at its congresses in 1910 and 1913, to the use of the mass-strike in Prussia. As a result of this struggle, together with that against the party's policies towards militarism and international affairs, there coalesced the small nucleus of radicals who later formed the Spartacist League.

In The Accumulation of Capital, Luxemburg reasoned that capitalism could redeem or realize its accumulated surplus value only in a non-capitalistic milieu. In imperialism, a competition for this shrinking accumulation domain, she perceived a cause of crises, wars, intensified international anarchy and heightened class-struggle. She believed that when the whole world had been made capitalistic by this conquest, capitalism would collapse for lack of accumulation possibilities.

From these economic premises, Luxemburg reasoned that socialism could hasten capitalism's downfall by combatting both militarism and imperialism. She also held that the only justifiable war was one between classes. Therefore, she vigorously opposed the voting of an extraordinary military impost by the socialist deputies in 1913. She bitterly condemned the capitulation of the Social Democratic Party when war broke in 1914 and called for the creation of a new and genuinely proletarian International.

Luxemburg was in jail from February, 1915 until the end of the war, except for five months in 1916. She nevertheless was instrumental in founding the International Group which became the Spartacist League in 1916. When she was released from prison on November 9, 1918, she resumed her leadership in the Spartacist League and became with Karl Liebknecht a founder and editor of Rote Fahne, its paper. She called for the overthrow of the Ebert-Scheidemann government, which she regarded as a betrayal of the socialist purposes and urged the working classes to make a genuinely proletarian revolution. Failing to gain control of the Soldiers' and Workers' Councils in December or to obtain predominance in the Independent Socialist Party, the Spartacist League became the Communist Party of Germany on December 30, 1918. At its founding congress the party disavowed Luxemburg's last minute effort to win its participation in elections for the National Constituent Assembly, which for two months she had opposed.

Early in January, the Communists, with some Independent Socialist allies, engaged in a mass-strike against the government. When this strike became revolutionary, evidencing the spontaneous tendencies which Luxemburg had often ascribed to proletarian actions, it was suppressed with force by the socialist government. Rosa Luxemburg, together with Karl Liebknecht, was murdered on January fifteenth by soldiers of the Guard Cavalry regiment, just after she had explained the defeat of the uprising as a result of unripe historical circumstances and had prophesied that the revolution would arise again.

The socialist labor movement of Germany became reformist in attitude during the pre-war era, even though it did not relinquish or alter its revolutionary creed, largely because of the influence of strong environmental forces and its own successes. Rosa Luxemburg, whose being was consumed by revolutionary Marxist principles, was unmoved by these formative influences. She explained the dwindling of revolutionary force in the party and unions as a result of organization, routine and bureaucracy, attributing it to the influence of corrupted leaders. Her strategy for overcoming it was to appeal to what she felt were the naturally revolutionary masses. Her failure to overcome the drift towards the right in the pre-war decade was due to her inability to perceive that the masses as well as their leaders had become imbued with the spirit of their age. The revolutionary principles of socialism, which she sustained throughout this pre-war decade, gained more significance during and immediately after the war years.

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PSYCHOLOGY

THE FLIGHT OF COLORS FOLLOWING INTENSE BRIEF STIMULATION OF THE EYE

Margaret Ives, Thesis (Ph.D.)
University of Michigan, 1938

These experiments deal with the subjective phenomena of the flight of colors or the sequence of after-images following brief stimulation of the eye with an intense light. The stimulus was produced by magnesium flash powder, used either alone or mixed with certain other chemicals to change the predominant wave-lengths of the light. The flash was brief enough to minimize the effect of eye movement; yet bright enough to produce varied color effects. Stimulation was restricted to the fovea except for scattered light effects. The subject was dark-adapted for ten minutes.

Six of the eighteen subjects had normal color vision according to a Nagel anomaloscope; six were anomalous trichromats; three protanopes and three deuteranopes. All were trained to classify as consistently as possible hues, saturations, and brightnesses in a predetermined series, the nomenclature of which was reduced where necessary for those with abnormal vision.

Regardless of stimulus the resulting flights of colors followed a typical pattern of hue sequence for normal trichromats: viz., white, blue or violet, yellow, orange, red, purple, blue, green, blue-green, blue, violet, colorless. The duration was found to increase with the duration and brightness of the stimulus. The entire sequence was rarely seen, although it became more nearly complete following the brighter stimuli and after frequent repetition of the experience. Anomalous trichromats reported flights which fitted into the same pattern, but for two of them the sequence also closely resembled the alternation of blue and one other hue, seen by the dichromats.

Variation of the wave-length composition of the stimulating light altered the proportions and saturations of the hues in the resulting flights. Hues of wave-lengths near those predominant in the stimulus lasted longer and were of higher saturations. For anomalous trichromats this relationship was not so close; while for dichromats change of stimulus seemed to change only the proportion of blue.

There were marked individual differences in:

1. The amount of colorless sensation reported. For trichromats there was in general an inverse relationship between duration of flight and percentage of colorless image, and conversely a direct relationship with percentage of high saturation. Dichromats reported little colorless image and no white.
2. The particular hue most frequently omitted from the flight. In general those of longer wave-length were most often missing.
3. Imageless intervals within the flight. These were greater in number and in frequency for dichromatic than for trichromatic subjects.

Altering the shape or size of the retinal area stimulated or omitting the period of dark-adaptation produced minor changes in the saturation of the resulting images. The greatest difference was produced by exposing the eye to a colored light for two minutes prior to the flash. The resulting flight was weak in or lacking in hues near the predominant wave-length of that light.

A possible explanation of the results is offered on the basis of a non-synchronous fluctuation of three variables. The effects may be analogous to those of binocular rivalry or of ambiguous perspective, but the addition of the third variable immensely complicates the resulting phenomena.

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ZOOLOGY

STUDIES ON THE MUSCLES OF THE PELVIC APPENDAGE IN BIRDS

George Elford Hudson, Thesis (Ph.D.)
University of Nebraska, 1936

Summary

Representatives of 15 of the 20 North American orders of birds were studied from a comparative viewpoint, to determine myological peculiarities of possible taxonomic value. All of the muscles of the pelvic limb were examined in 29 species. Examination was mainly by gross dissection but celloidin cross sections at various levels on the hind limb were prepared for five species. This latter method has apparently not been used before in studies on the appendicular muscles of birds. The nomenclature of Gadow (Bronn's Thier-Reichs) is used, but this is revised to conform as closely as possible with the BNA.

A rudimentary but very definite ambiens muscle is present in Uria aalge californica, although all members of the Alcidae are generally believed to lack this muscle.

Species of the genus Buteo differ from those of the genus Falco in many important respects. The plantaris muscle is powerfully developed in Falco. This muscle has apparently not been reported before in the Falconiformes.

The Tyrannidae and Hirundinidae differ from the 20 other families of Passeriformes examined in the absence of the post-acetabular portion of the ilio-tibialis muscle.

A strong vinculum connects the tendons of the flexor perforatus digiti III and the flexor perforatus et perforatus digiti III in many groups of birds. This structure has heretofore received very little attention.

In many birds there are small fibro-elastic ligaments which function as automatic extensors of the claws.

A proposal is made to amplify Garrod's myological formula to include the ilio-trochantericus medius, glutaeus medius et minimus, and the vinculum connecting the tendons of the flexor perforatus

digiti III and the flexor perforans et perforatus digiti III. These three structures are designated by the letters C, D and V, respectively.

All of the muscles known to occur in the pelvic limb of birds are present in representatives of the Order Galliformes, indicating a primitive condition. The greatest reduction in number of muscles was found in the orders Colymbiformes, Piciformes, and Passeriformes.

Fregata and the Falconiformes have the same myological formula (ADAm) but differ radically in other myological features.

Bubo and Otus differ greatly from Chordeiles in the musculature of the pelvic limb.

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